Comparisons of Job Characteristics

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Medical Scientists, Except Epidemiologists (19-1042)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge — Similarity of Focus Occupation to Associated Occupation: 89

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Medical Scientists, Except Epidemiologists (19-1042)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Biology	3.7	19.8	24.1	>>	Current knowledge level is likely more than sufficient
English Language	11.2	17.4	16.6	0	Current knowledge level may be sufficient
Mathematics	9.2	17.2	12.8	<<	Extensive education and/or training may be required
Chemistry	4.8	15.8	15.2	0	Current knowledge level may be sufficient
Medicine and Dentistry	3.7	15.6	10.7	<<	Extensive education and/or training may be required
Communications and Media	5.3	14.3	6.8	<<	Extensive education and/or training may be required
Administration and Management	8.4	12.9	10.7	<	Expanded education and/or training may be required
Personnel and Human Resources	5.6	12.4	7.9	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills — Similarity of Focus Occupation to Associated Occupation: 95

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Medical Scientists, Except Epidemiologists (19-1042)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Science	4.5	17.6	17.0	0	Current skill level may be sufficient
Reading Comprehension	10.7	17.2	15.5	<	A higher skill level may be required
Critical Thinking	10.8	16.2	15.0	0	Current skill level may be sufficient

Complex Problem Solving	9.1	14.6	11.5	<<	Extensive development of skills in this area may be required
Writing	9.2	13.9	14.8	0	Current skill level may be sufficient
Active Learning	8.7	13.4	14.7	0	Current skill level may be sufficient
Judgment and Decision Making	9.4	12.8	12.4	0	Current skill level may be sufficient
Monitoring	9.9	12.8	12.2	0	Current skill level may be sufficient
Systems Analysis	6.5	11.9	10.6	<	A higher skill level may be required
Systems Evaluation	6.4	11.7	9.9	<	A higher skill level may be required
Mathematics	6.2	11.3	11.0	0	Current skill level may be sufficient
Operations Analysis	5.0	10.0	8.8	<	A higher skill level may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities — Similarity of Focus Occupation to Associated Occupation: 94

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Medical Scientists, Except Epidemiologists (19-1042)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Oral Comprehension	12.5	18.8	15.3	<<	Extensive improvement in abilities may be required
Inductive Reasoning	10.2	18.6	18.0	0	Current ability level may be sufficient
Written Comprehension	11.0	18.3	16.5	<	Some improvement in abilities may be required
Oral Expression	12.4	17.5	15.0	<	Some improvement in abilities may be required
Problem Sensitivity	11.1	16.1	16.1	0	Current ability level may be sufficient
Deductive Reasoning	10.6	16.0	15.7	0	Current ability level may be sufficient
Written Expression	9.8	14.9	15.5	0	Current ability level may be sufficient
Near Vision	11.1	14.4	15.0	0	Current ability level may be sufficient
Information Ordering	9.9	13.9	13.9	0	Current ability level may be sufficient
Category Flexibility	9.0	12.4	16.0	>>	Current ability level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common — Similarity of Focus Occupation to Associated Occupation: 92

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Medical Scientists, Except Epidemiologists (19-1042)

Work Activities	Exclusivity of Activity
Adhere to safety procedures	12
Advise clients or customers	19

Advise governmental or industrial personnel	28
Analyze biological research, test, or analysis data	70
Analyze scientific research data or investigative findings	27
Collect scientific or technical data	30
Collect statistical data	47
Communicate technical information	4
Conduct analyses or tests of organic compounds	71
Conduct field research or investigative studies	52
Conduct laboratory research or experiments	57
Conduct standardized qualitative laboratory analyses	62
Conduct standardized quantitative laboratory analyses	62
Confer with research personnel	50
Confer with scientists	54
Cultivate micro-organisms for study, testing, or medical preparations	84
Develop new products based on scientific research results	71
Develop or maintain databases	30
Develop plans for programs or projects	31
Develop policies, procedures, methods, or standards	21
Develop scientific or mathematical hypotheses, theories, or laws	62
Develop tables depicting data	33
Direct and coordinate activities of workers or staff	3
Direct and coordinate scientific research or investigative studies	27
Examine biological or other material specimens under microscope	73
Explain complex mathematical information	30
Explain genetic data	87
Follow infectious materials procedures	52
Follow microbiology procedures	74
Forecast or predict phenomena based upon research data	71
Isolate and identify micro-organisms	82
Make decisions	24
Make presentations	13
Perform statistical analysis	71
Plan scientific research or investigative studies	48
Prepare reports	8
Prepare technical reports or related documentation	22
Recommend further study or action based on research data	60
Record test results, test procedures, or inspection data	48
Research human or animal disease	77
Understand pharmaceutical formulas	89
Understand properties or composition of drugs	64
Use biological research techniques	68
Use biological testing instruments	73
Use chemical testing or analysis procedures	54
Use computers to enter, access or retrieve data	3
Use hazardous materials information	35
Use health or sanitation standards	62
Use knowledge of investigation techniques	16
Use laboratory equipment	60

Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use microscope	71
Use project management techniques	47
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21
Use spreadsheet software	18
Use word processing or desktop publishing software	17
Write research or project grant proposals	33
Write scholarly or technical research papers	36

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Tools and Technologies that Both Occupations Have in Common	Similarity of Focus Occupation to Associated Occupation: 83

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Medical Scientists, Except Epidemiologists (19-1042)

Tools and Technologies	Exclusivity
Autoclave and sterilizer equipment and accessories	12
Chemical evaluation instruments and supplies	10
Chromatographic measuring instruments and accessories	16
Clinical and diagnostic analyzers and accessories and supplies	18
Computer printers	2
Computers	1
Content authoring and editing software	1
Data management and query software	1
Electrochemical measuring instruments and accessories	9
Fermentation equipment	31
General laboratory glassware and plasticware and supplies	13
Histology equipment	35
Indicating and recording instruments	2
Industry specific software	1
Laboratory blending and dispersing and homogenizing equipment and supplies	27
Laboratory centrifuges and accessories	13
Laboratory cooling equipment	25
Laboratory decanting and distilling and evaporating and extracting equipment and supplies	19
Laboratory electrophoresis and blotting system and supplies	26
Laboratory enclosures and accessories	17
Laboratory filtering equipment and supplies	51
Laboratory heating and drying equipment	13
Laboratory incubating equipment	20
Laboratory mixing and stirring and shaking equipment and supplies	19
Laboratory ovens and accessories	15

Laboratory washing and cleaning equipment	35
Light and wave generating and measuring equipment	4
Pipettes and liquid handling equipment and supplies	16
Spectroscopic equipment	10
Temperature and heat measuring instruments	6
Tissue culture and high throughput screening supplies	31
Viewing and observing instruments and accessories	4
Weight measuring instruments	7

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.